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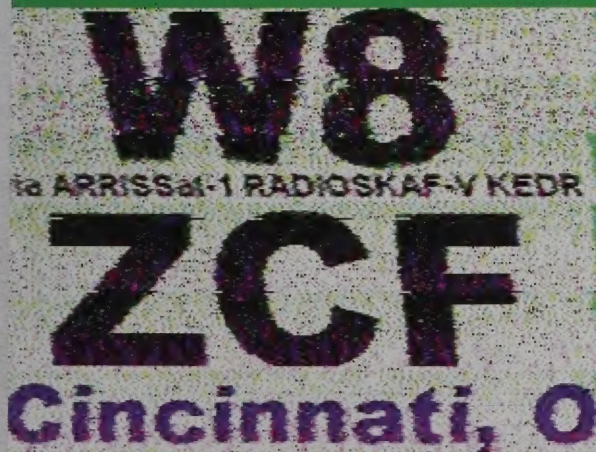
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Amateur Television Quarterly

Hamvention Balloon

Weak Signal ATV DX

SSTV via ARISSat-1



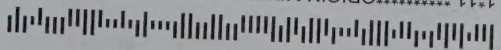
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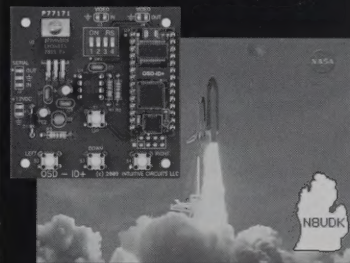
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Sync Buzz Editorial

- Bill Brown WB8ELK and Mike Collis WA6SVT



Farrell W8ZCF and Jeff KB8VCO show how they operated SSTV through the damaged ARISSat-1 satellite.

In this issue

I recently bought a Fun Cube Dongle SDR radio. WB8LGA and WA8RMC show how to use this amazing device to locate weak ATV signals on page 12.

Farrell W8ZCF and Jeff KB8VCO describe their amazing success operating SSTV via the damaged ARISSat-1 satellite on page 6.

In the next Q

Dayton 2012 is now a fond memory. The ATV Forum and the annual Friday night ATV dinner was well attended and a great time was had by all.

A high altitude balloon carrying SSTV was launched on Saturday in the flea market and landed just 8 miles away on a farm owned by a ham operator.

<http://www.atvquarterly.com>

The upcoming Summer issue will cover this year's Dayton Hamvention ATV activities.

In addition there will be articles about using ATV to battle forest fires, a color bar generator circuit and more articles about Digital ATV.

*Stay Tuned,
- Bill and Mike*

ATVQ

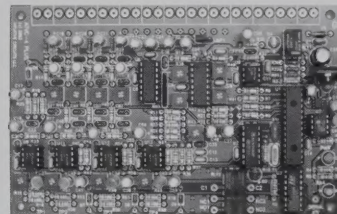
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Father/Son Send and Receive TV Picture via Outer Space

(Through Satellite with Missing Antenna)

- Farrell Winder W8ZCF & Jeff Winder KB8VCO

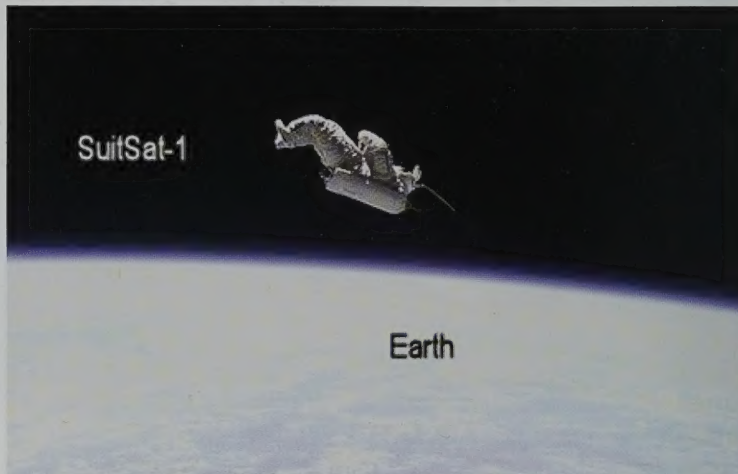
Under very challenging circumstances, two Amateur Radio operators, Farrell Winder, W8ZCF and his Son Jeff, KB8VCO were able to transmit and receive a picture via an Amateur Radio satellite, ARISSat-1 RADIOSKAF-V KEDR. This satellite comes via ARISS, an organization providing interface with Amateurs on Earth to Astronauts aboard the International Space Station*. (ISS).

HISTORY

The history and basic concept of the ARRISat satellite started in 2006 wherein a very "cool" and perhaps crazy but very innovative idea was presented by Sergey Samburov, RV3DR. Sergey is the Russian Chief of the Cosmonaut Amateur Radio Department covering Amateur Radio aboard the ISS. He proposed to use an out of date Orlon Russian Space Suit stored aboard the space station for an experimental Amateur Radio Satellite that would orbit in space. The Orlon suits used by the space walkers are normally discarded overboard after about 6 months. Sergey proposed, "Why not load the suit with an Amateur transmitter and batteries"? The combination could then be tossed into space to send stored (prerecorded) voice and TV pictures to amateurs on Earth. It would follow a similar orbit to that of the ISS.

Suit-Sat-1

The idea became a successful and exciting reality. It was named SuitSat-1. SuitSat-1 was launched from the ISS in 2006. It transmitted 2 meter signals to Amateurs on Earth for about 2 weeks until the batteries ran down. See a photo of Suitsat-1 taken from the ISS just after launch. Note the radio antenna attached



SuitSat-1 Satellite orbiting above Earth

to the helmet, Batteries are in the back pack.

ARISSat-1

The success of SuitSat-1 inspired the development of a more advanced concept with a metal frame and solar cells for charging the batteries. Size of this satellite is 21.6x 21.6x15.7 inches with a weight of 66 lbs. It was named ARISSat-1 RADIOSKAF-V KEDR. ARISSat stands for Amateur Radio Satellite, RADIOSKAF means Radio Sputnik and KEDR was Russian Yuri Gagarin's call sign that he used as the first person to orbit the Earth 50 years ago. (1961-2011). The launch was timed to coincide with Yuri's 50th year flight anniversary of his flight.

Transponder with Big Challenge

ARISSat-1 was launched during August 2011. This more elaborate satellite was designed having two sections. One section was the Transponder consisting of a 70 cm receiver to receive signals from Amateurs on Earth. An associated 2 meter transmitter would then

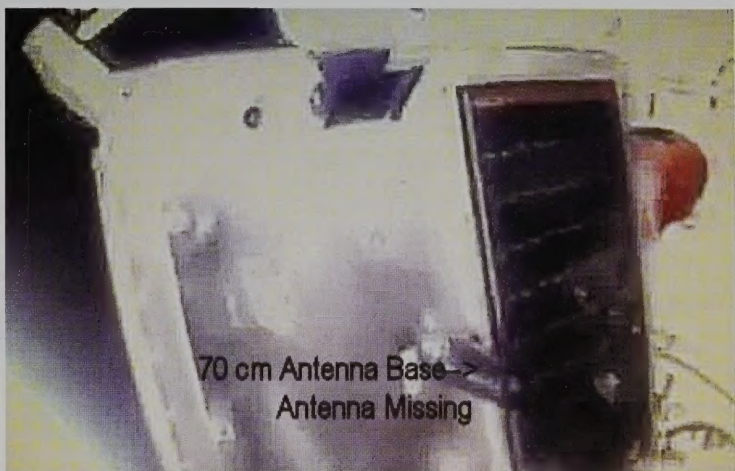
rebroadcast signals back to earth. However, during the planned launch of the satellite by Cosmonauts Sergei Volkov, RU3DIS and Alexander Samokutaev, they discovered that the 70 cm antenna was missing. A photo taken by one of the Cosmonaut's helmet camera clearly shows that there was no antenna.

A comparison photo during construction shows the normal configuration.

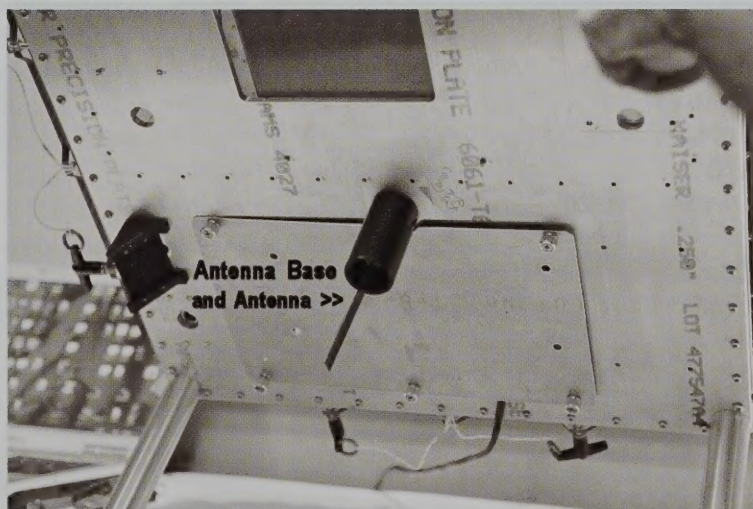
Apparently the receiver antenna was inadvertently broken off. After discussion and a lengthy delay, it was decided to go ahead and launch with the missing antenna. It is estimated by Lou McFadin, W5DID, ARISS Engineering Hardware Manager, that there was about 1.5 inches of RF sensitive length remaining inside the Delrin (nonconductive) support base. This length calculates to about 1/16 wavelength that was capable of receiving incoming transmissions. The greatest challenge was therefore presented in getting a signal from Earth to the remainder of the 70 cm antenna on the satellite.

While the 2 meter section of the satellite provided easy copy of on board recordings of FM Voice, SSTV**, Telemetry and Earth pictures taken by 4 onboard cameras, this was not the case when trying to send and receive signals via the transponder.

Many attempts were made from my station trying to contact voice and CW signals which were heard very weakly. Many replies made to identifiable signals did result in 2 confirmed contacts, one to Robert Atkinson, K9OIM, Almo, KY and one to Peter Portanova, WB2OQQ Massapequa, NY.



Helmet camera Picture of ARISSat-1 revealing NO 70 cm antenna



ARISSat-1 during construction showing normal 70 cm antenna

Success of SSTV Pictures

On August 9, 2011 Henk Hamoen, PA3GUO in the Netherlands sent an SSTV picture of his call sign through the transponder and received back a copy at his station. This gave me a great incentive to also try SSTV. Both my son, Jeff Winder, KB8VCO and I spent several days at NASA Houston working on SuitSat-1 and were very inter- *Cont. on Page 8* ➔

K9OIM

ALMO, KENTUCKY USA

Calloway County - EM56

Robert Atkinson
2289 Radio Road
Almo, KY 42020

bob@roim@aol.com

K9OIM confirmation QSL card

ested in this reconfigured satellite. We teamed together on November 12, 2011 to manage all the variables and succeeded in sending and receiving an image of my automobile license plate through the transponder. Some of the key items for this event along with the operators may be noted in the station photo.

The setup used two computers with MMSSTV software, one to transmit, the other to receive. The antennas used were an M Squared 2MCP14 for 2 m and a stacked pair of K1FO antennas for 70 cm. The antennas were manually controlled, closely following the changing azimuth presentation from Nova for Windows. Two Yaesu 736's were used, one to transmit and one to receive. The beginning 70 cm transmitter frequency setting was 435.750 MHz LSB. Power out to the antenna on SSB voice ranged 20-100 watts peak with a higher average on SSTV. The 2 m receiver was fixed at 145.930 MHz USB.

Managing Doppler

Doppler control was a very difficult factor with the small signal return. The satellite was traveling at 18,000 mph at an altitude of 225 miles leaving a footprint of only 1 to 9 minutes over Cincinnati. After many tries, a technique was devised to locate the cor-

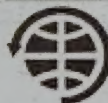
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WB2OQQ

SATELLITE *ARISSAT-1*

CALL SIGN	DATE	TIME	FREQ	MODE	QSL
WB2OQQ	2012	11	18:36	435.750	5/5

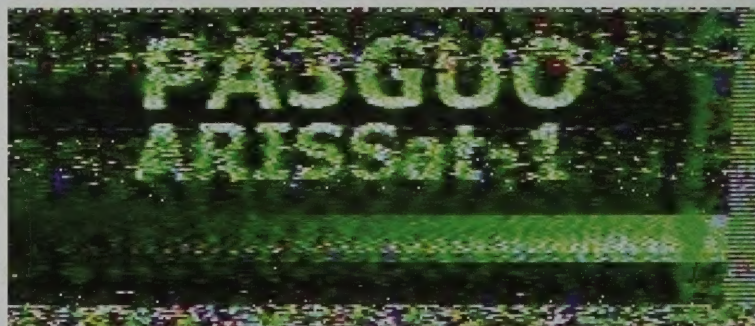


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rect signal frequency return which would place the sync for the R36 format at the proper place on the MMSSTV spectrogram to initiate the start of the received image. This was done by first transmitting the 1750 Hz signal in the MMSSTV program and receiving its return, adjusting the transmitter frequency to center it as close as possible to the 1750 position as depicted on the MMSSTV spectrogram. Once located the SSTV picture was immediately started. The resulting R 36 sync pulse appearing at 1200 Hz was then used as the primary 'beacon' for doppler control. This was still difficult as the returning sync pulse often became embedded in noise and doppler adjustment was lost. It was very evident that the effective receive position of the shortened 70 cm



SSTV Transmission via ARISSat-1/Radioscaf-B

Radio Station: PA3GUO, The Netherlands

09 August 2011, 02:58 UTC

Uplink 435.75 MHz (LSB), Downlink 145.9 MHz (USB)

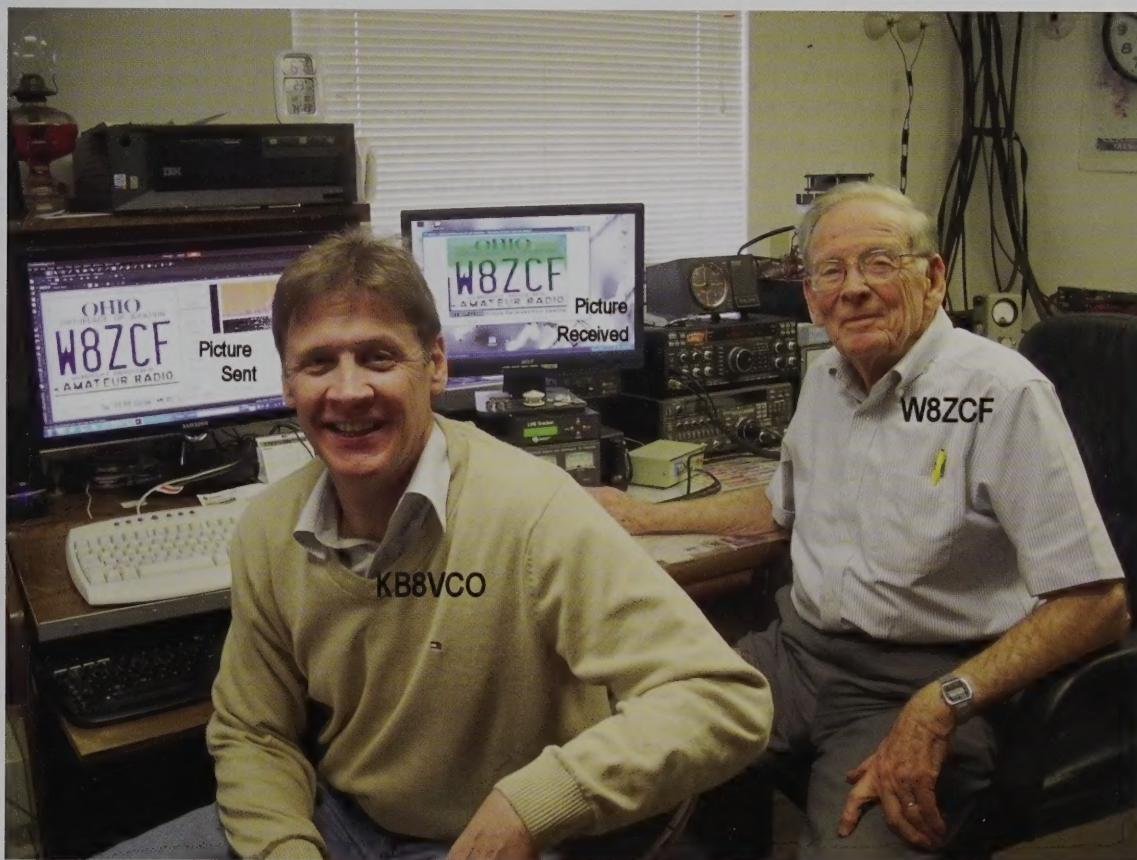
antenna on the satellite had to be aligned as nearly perfect as possible with the transmitting antenna on Earth. QSB on the return signal indicated that there was possibly some tumble or spin of the satellite and therefore the sensitive position of the receive antenna was not always in view which made its position critical to receive an R36 picture (36 seconds duration).

Two more Successful Pictures

Additional SSTV transmissions from my station in December resulted in a picture being received by Doug Papay, KD8CAO, Zeeland, Michigan. As may be noted KD8CAO's picture was the best of those received. He had a special



Received auto license plate image from ARISSat-1



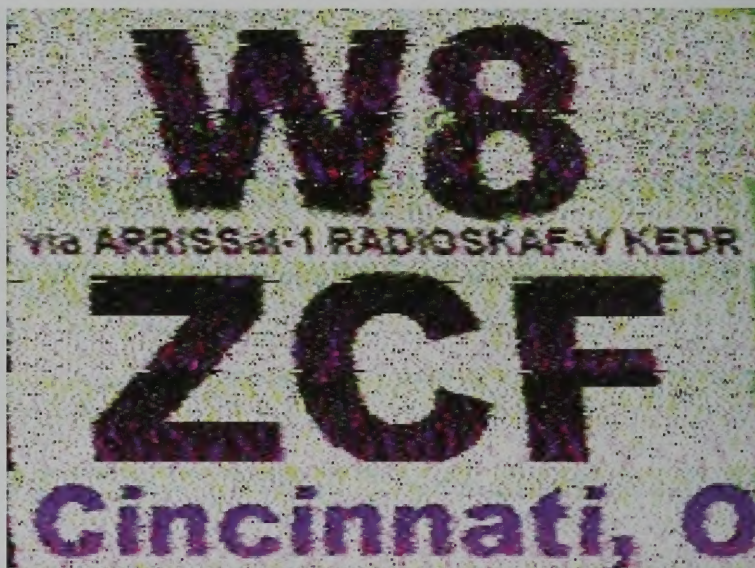
Some of the key items and operators at the W8ZCF station

Cont. on Page 10

cavity filter which I believe enhanced his S/N. Two other stations received fairly good parts of the transmitted pictures of my call sign. These are Burns Fisher, W2BFJ, Brookline, NH and Jerry Pixton, W6IHG, Strasburg, VA.

Complete pictures were not possible probably due to my inability to correct doppler of my transmissions along with further correction of doppler at remote receiving locations. Paul Williamson, KB5MU's 'One Rule for Doppler Tuning' was used by changing only the 70 cm transmitter frequency at my station.

A third station, Roland Zurmely, PY4ZBZ, Minas Gerais, Brazil sent an image via the transponder on December 12, 2011. He received back a Pic Fall transmission using an SDR-IQ (SDR Software Defined Radio with Spectrum Analyzer and Panoramic Adapter). It is remarkable that he used only 18 watts into a 6 element UHF yagi. PY4ZBZ is also to be noted for his excellent web page, (<http://www.qsl.net/py4zbz/arissat.htm>) of ARISSat-1 covering its performance while in space. He is also to be recognized for his development of



Picture of W8ZCF ATV ID picture received by KD8CAO

SSTV software, DIGTRAX.

As far as can be determined, there were only 3 stations successful with SSTV. It was noted that both KD8CAO and PY4ZBZ used the new AMSAT-UK development of the highly sensitive FUNcube Dongle (SDR) in their receiving setup. Plugged into a USB



PY4ZBZ image received via ARISSat-1

ARISS: Amateur Radio on the International Space Station

ARISS provides opportunities for youth, teachers, families and communities to become more aware of the substantial benefits of human spaceflight and the exploration and discovery that occur on spaceflight journeys.



port it displays a full spectrum of received signals.

A Bit of DX

DX was not, in my endeavors, a goal through the transponder. However, on January 3, 2012 at 18:16 UTC, Kerry LaDuke, WC7V in Livingston, MT reported receiving my CW call sign from Cincinnati, Ohio. The distance between us is 2261 km (1405 miles). On December 18, 2011 Hank Cantrell, W4HTB, Bowling Green, KY, 182 miles, reported receiving my signal, and I heard a signal, but a 2 way contact was not verified. On one try, W4HTB was able to transmit and hear his own call.

End Result of TV via Outer Space

The end result of this story is that it was a lot of hard earned fun, excitement, challenge and educational experience to work with very small signals.

Recognition of Success of Satellite

Much recognition must be given for the success of this satellite to Lou McFadin, W5DID, ARISS Hardware Engineering Manager and his Team. This would include Steve Bible, N7HPR and his Engineering group at MicroChip Technology in Arizona. Great thanks also to Sergey Samburov, RV3DR, Chief of Cosmonaut Amateur Radio Department, Korolev, Russia for his original concept

of SuitSat-1 and the testing of ARISSAT-1 RADIOSKAF-V KEDR. Also thanks to Valery Pikkiev, UA3WBV and his group at KURSK University for the on board Science Experiment equipment to measure the Vacuum of Space.

AMSAT is also to be commended for the many articles, specifications and updates of progress of this satellite over some 4 + years of engineering and development. The AMSAT Engineering Group is to be recognized for the first successful use of SDX (Software Defined Transponder) in an Amateur Radio Satellite. (See Nov. 2011 pages 44-49 issue of CQ Magazine for detailed discussion of SDX by Tony Monteiro, AA2TX, VP Engineering, AMSAT).

We trust that AMSAT, ARISS and RSC-Energia, Russia will be able to develop and launch other similar satellites in the near future.

* See photo of ISS with definition of ARISS

**See: www.amsat.org/amsat/ariss/SSTV and www.ariss-sstv.blogspot.com for many of the excellent Earth Pictures taken by the on board 4 cameras and also the stored pictures which were transmitted via the 2 meter FM down-link section of this satellite.

ATVQ

SOFTWARE DEFINED RADIO DONGLE HELPS LOCATE WEAK ATV

WB8LGA reports that there is a “super” FunCube radio dongle available that plugs into your computer’s USB port to receive radio signals from 64 to 1750 MHz. It is super sensitive and able to resolve signals as weak as -140dBm. The only drawback is its ability to only receive an 88 KHz wide signal. That sounds like a killer for 4-5MHz wide ATV signal reception but...not so fast! Although it cannot detect an entire 4 MHz video passband, it CAN see any desired 88 KHz part of it. For example, if it is tuned to 427.25 MHz, you can see the ATCO repeater horizontal sync pulse in the signal just 15,750 Hz away from the center carrier. You can tune 4.5 MHz higher and see the 4.5 MHz sound subcarrier and its modulation. In short, you can’t see the entire signal at once, but you CAN tune through the bandpass to see the subparts. That way you can identify if the signal is upper or lower sideband, double sideband or any other type of modulation. You can even “pick apart” the DATV signal and identify it as digital and see some of the “haystack” components. The time display, detailed below, can identify non repetitive random signals to provide a type of “peak sample and hold” function.



The unit at first glance, is a rather pricey cost of \$180 USD shipped postpaid from the UK in about 2-3 days. No, the manufacturing cost is not near that to but they donate a portion of the profits to the UK AMSAT project group that helped develop it. So, you’re helping the European Amateur Radio efforts. The unit software is available as a free download as well as any software improvements and related software programs that run using this dongle. Already there is a companion up-converter module available to extend the lower RF receive range down to less than 1 MHz making the dongle useful as an HF spectrum scope!

A number of Hams in our area either own this unit or are awaiting receipt of a purchased one. The list includes Hank W4HTB, Dick W8RVH, Ross WA8MFD, Ferrel W8ZCF and Charles WB8LGA. They claim it is a great tool to detect the presence of a weak signal far before it is ever possible to hear or see it on normal receiver. WB8LGA can see an ATV signal at about -130dBm whereas his regular receiver won’t detect it below -80 dBm. That’s 50 dB below what the communication receiver can detect. (For comparison, an ATV signal has a 30 dB range from P0 to P5.) The link to the unit is http://www.funcubedongle.com/?page_id=2 and if you want to download the HSDR program to just “test drive it” control-click the link here at: http://www.sdr-radio.com/LinkClick.aspx?link=http%3a%2f%2fwww.ham-radio.ch%2fkits%2fsdr-radio.com%2f1.4%2fSDR-RADIO_v1.4b824.exe&tabid=178&mid=1287&language=en-US&forcedownload=true. Software upgrades are at: <http://www.lb3hc.net/archives/1248>.

The FunCube HF companion converter for DC to 100 MHz operation is at: http://www.ct1ffu.com/site/index.php?option=com_content&view=article&id=178&Itemid=104 or http://www.george-smart.co.uk/wiki/FunCube_Upconverter

On the right is a picture of what WR8ATV 427.25 MHz P5 signal looks like.

The top portion is the “waterfall” time display. Time is vertical and the most recent time slice at the bottom. The older unfinished portion is at the top. The lower “rainbow” portion is the start of the display moving upwards toward the top. The colors represent levels of signal intensity. The white portions are strongest and dark blue is weakest. The wide white band is the center carrier portion of the 427.25 MHz signal.

The “spectrum” graph below the “waterfall rainbow” is what you’d see on a spectrum analyzer. Frequency is horizontal.

The two screens below and to the right of the “spectrum” graph are magnified portions of the “waterfall/rainbow” display shown in blue. The lower section is where the signal level in dBm is measured.



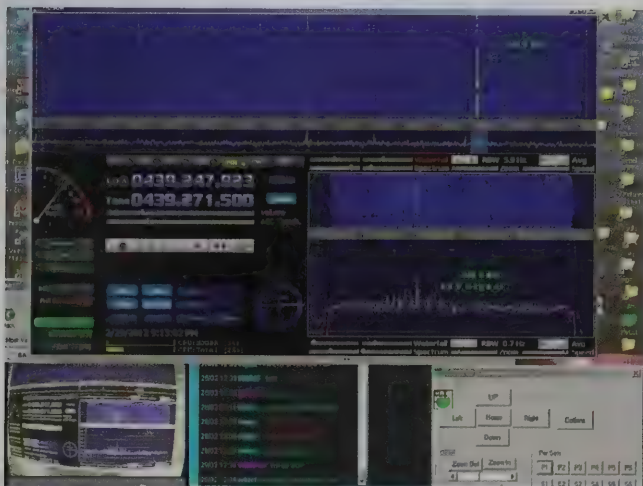
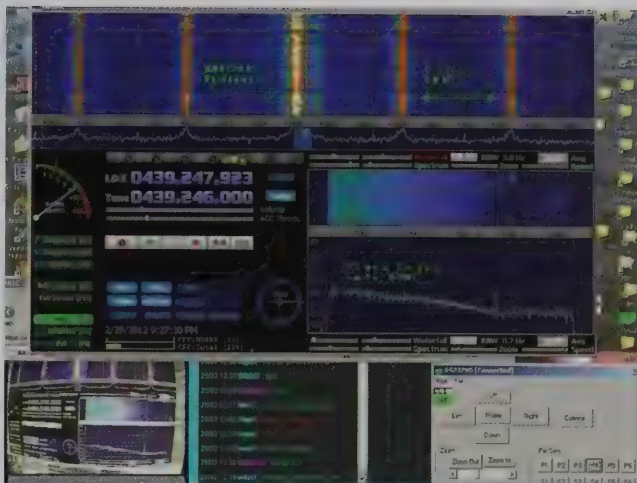
OK, enough about the details. There are more, but IS a rather intimidating collection of information so it’s best for you to download the program and “play” with it first. Then, I’m sure you will want to run out and buy one but I’d wait for Dayton and see it there. I don’t know for sure if they will be selling these at Dayton but suspect they will. So, look it over and road test it first so you can ask intelligent questions to the representatives when you get there.

...WB8LGA & WA8RMC

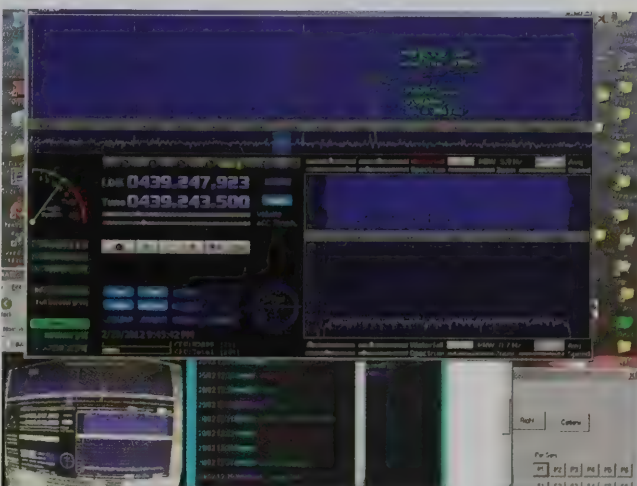
The following is a sample collection of various reception screens. Enjoy!

This is the 439.25 MHz signal of KB8GUE near Dayton. Notice the orange bands in the rainbow display indicating “sync” and the white band as the carrier center. Because there are bands below and above the center carrier indicates a double sideband signal. A vestigial sideband signal would be missing the lower bands.

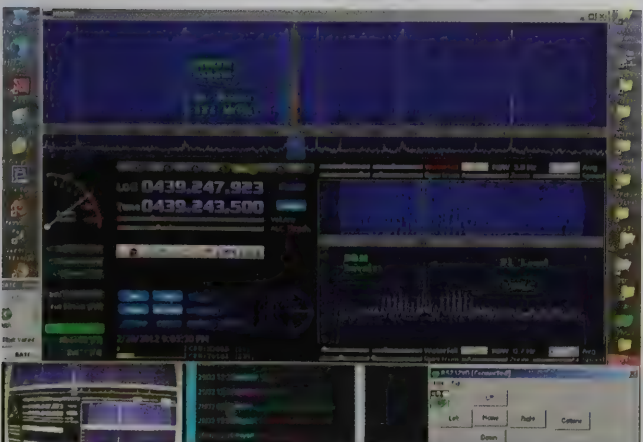
"The blip in the lower right hand display shows the FunCube local oscillator center carrier which is the 439.25 MHz picture and signal strength".



Here is Dave AH2AR in Dayton. The signal was too weak to see on an ATV receiver and could not detect any sync or video. However it displayed vividly in the “waterfall” display and also in the magnified signal strength portion below showing about -100 dBm level. That’s way too weak to be detected by normal means!



Here is Hank’s W4HTB 5 watt video signal. Sync or video could not be seen on the ATV receiver. A repeat of this signal three days in a row was seen under unfavorable band conditions.



Here is W9ZIH in Chicago at a P1 level with a little band enhancement.



...WB8LGA

Dayton Hamvention Balloon

- Bill Brown WB8ELK



The Dayton Hamvention balloon launched from the flea market

Hamvention Balloon 2011

On Friday of last year's Dayton Hamvention we had a big turnout at the BalloonSat Forum. Hams from balloon groups across the Nation gave great talks about their activities. To top things off after the forum we inflated a weather balloon right inside the HARA Arena near the main flea market entrance.

Doug Loughmiller W5BL and a large contingent from the ARBONET (Amateur Radio Balloons Over North East Texas) balloon group helped out with the launch prep along with Dave Snyder KB8PVR, Brian Tanner, Mark Garrett KA9SZX and Tom Holmes N8ZM. The balloon was sponsored by the Midwest VHF/UHF Society and the Dayton Hamvention.

Onboard the balloon were three APRS transmitters (WB8ELK-11, -12 and -13), a six meter Hellsreiber payload supplied by ARBONET, a FindMeSpot GPS tracker and my GoPro Hero HD video camera pointing straight down.

The weather was perfect as we paraded the balloon and payloads out into the flea market surrounded by a large growing crowd of curious hams. Its tricky to launch a balloon in the flea market without snagging radio towers or food and vendor tents but we managed to find a clear spot that gave us enough room to clear everything. As I held the last payload with the balloon standing 50 feet in the air above us, I said "That's one small step for a Ham, one giant leap for a balloon" and let the balloon fly away on its amazing journey over Dayton and southeastern Ohio.



1,000 feet above the Hamvention. I can actually see my car in the parking lot.



3,000 feet up above the Hamvention.

The balloon headed straight up for the first 10,000 feet hanging directly over the Hamvention until it finally got lost in the clouds. Many hams inside the Arena enjoyed following the APRS track during the flight. Over an hour after liftoff, the balloon finally



10,000 feet up showing the Hamvention through the clouds

burst at 85,598 feet. By that time it had drifted nearly 100 miles to the southeast and landed near the small town of Mt. Orab, Ohio about 30 miles southeast of Cincinnati.

Ron Malinowski N9QGS (now WX4GPS) tracked the

Continued on Page 16



balloon down to a small woods at the end of long gravel road and a field. He found it draped 75 feet up in the treetops in the middle of the woods and gave us the final landing site coordinates.

Two days later as the Hamvention was wrapping up, Rod Fritz WB9KMO, Don Hill KE6BXT, Norm Hill KD6OMV, Ron Hill KD6NIZ and I decided to take the two hour trip to southern Ohio to attempt recovery. As we were approaching the landing zone, a torrential thunderstorm complete with what appeared to be a funnel cloud swept through just in front of us dumping three inches of rain on the landing site.

As a result of the rain, we ended up slogging a half mile through a swamp and ankle-deep mud in a large field to finally get to the woods. Just when we thought it couldn't get any worse, we discovered that the woods was filled with waist-high poison ivy, but after all that we didn't let that stop us.

I got out my trusty E-Z Hang slingshot and fired off a couple of rounds and managed to loop the fishing line perfectly over the string holding the payloads together. Unfortunately after giving it a big yank a large



75 feet up in the treetops. Photo by Rod Fritz WB9KMO.



Bill Brown WB8ELK shoots a line over the payloads with an E-Z Hang slingshot. Photo by Rod Fritz WB9KMO.

limb snapped off and tangled everything all together still hanging 45 feet up in the tree. Since sunlight was rapidly running out, we decided to call it a day since we didn't particularly want to walk through the mud and the swamp in the darkness. I left the string from the E-Z Hang dangling from the payload in hopes that someone would give it a try a week or two later.

Tom Reed KA8HUZ came to the rescue a couple of weeks later, found the string dangling from the payloads and after giving it a few big yanks managed to pull everything out of the tree.

The video from the GoPro camera was simply amazing. The detail was so good that I could actually see my car in the Hamvention parking lot from 1,000 feet high and in fact showed the entire Hamvention and flea market. At 10,000 feet up you can still see the

Hamvention in between the clouds. The flight video shows the entire flight from launch to burst at over 85,000 feet as well as a wild landing in the treetops.

This year's Hamvention flight in 2012 was another great success. We launched it from the flea market on Saturday afternoon. It carried APRS along with a live-camera SSTV and DominoEX transmitter. After flying only 8 miles away it landed on a farm actually owned by a ham radio operator. Details on this flight will be in the next issue of the Q.

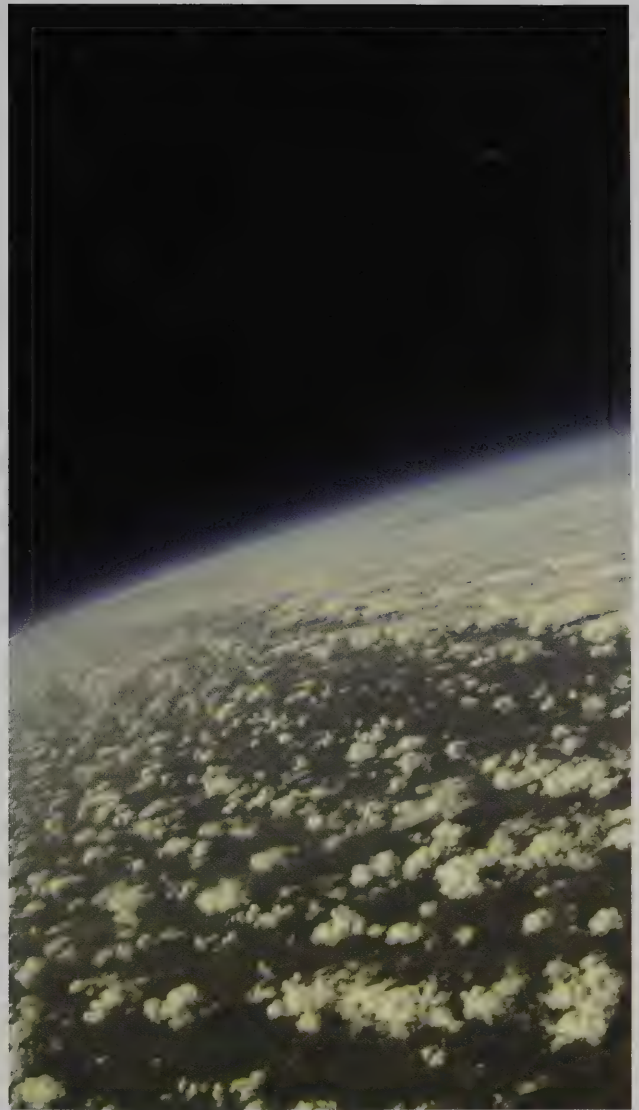
We plan yet another flight from the Hamvention in 2013.

Launch Team:

Bill Brown WB8ELK
Doug Loughmiller W5BL
Dave Snyder KB8PVR
Tom Holmes N8ZM
Mark Garrett KA9SZX
Brian Tanner
David Forbes KC5UYR
Mark Felton N5UWM
Billy Mason KD5KNR
Mike Heskett WB5QLD
Dale Loughmiller KB5TZN
Deane Loughmiller K5DAL

Recovery Team:

Rod Fritz WB9KMO
Don Hill KE6BXT
Norm Hill KD6OMV
Ron Hill KD6NIZ
Bill Brown WB8ELK
Ron Malinowski N9QGS (now WX4GPS)
Tom Reed KA8HUZ



Balloon burst at 85,598 feet.

26th Annual Litchfield ATV Banquet

- Scott Millick K9SM



Scott K9SM(left) presents the 20th ATV operator of the year award to Ben Kiningham K9IDQ (right)

A clear windy 65 degree day provided a pleasant trip for those traveling to the twenty-sixth annual Central Illinois/St. Louis Area Amateur Television Club's banquet at the Ariston Restaurant in Litchfield, Illinois. This location serves as the central annual meeting point for club members attending from the Springfield, Macomb, Illinois and St. Louis, Missouri areas

This dedicated group of ATV operators arrived for another evening of renewing friendships and meeting new members with 30 members attending the banquet this year.

Ben K9IDQ, Harold KD9SG, Reba N9END, Dallas WD9IVD and Joyce KB9JVT from the Springfield and Troy, Illinois areas arrived first this year with others following shortly and soon the talk about ATV openings, contesting, and equipment

reverberated throughout the room.

The group was called to order at 5 PM by Scotty K9SM and after a few announcements the clatter of dishes, glasses, utensils and chit chat continued throughout the course of another great meal and delicious desserts at this famous Route 66 landmark restaurant.

Ben Kiningham K9IDQ was presented the twentieth Central Illinois/St. Louis Area ATV Operator of the Year. Ben is from Petersburg, Illinois and is a local VHF/UHF and HF operator in that area and has been active for many years on ATV. He is a retired radio network news reporter and Bureau Chief and the 'volunteer' voice of WPQZ702, 1610 tourism radio in Menard County. He is also a member of a number of community groups including the Tourism Council, Trail n Greenways and the Menard County Planning Commission.

A new game based on the television show 'Survivor' was played with the members sitting at each table becoming tribes and electing a Tribal Chief who passed out 15 questions and recorded the answers. The two tribes who had the most correct



The three finalists for the "Survivor" game.

answers went to the second round. This round was for individual reward with the top three participants moving to the final portion of the game. In this round the 3 winners with the closest answers were given verbal questions and the winner was Bob Amelung KD0JIY. He was given his choice of anything on the prize table, except for the grand prize, and kept it as his reward.



The famous prize drawing followed which included a Heil Sound headset which as the main prize. The drawing provided a lot of fun and laughs. The first person's name drawn had their choice of any six of any of the 150 plus prizes in the first round. After that every person whose name was called could select 1 prize from the prize table or take a prize from someone who had already chose one. That person then selected a replacement from the prize table. This led to some of the prizes changing hands several times.

After the drawing more visiting followed and farewells were given. Everyone made their way home and are looking forward to the next banquet scheduled for November 4, 2012.

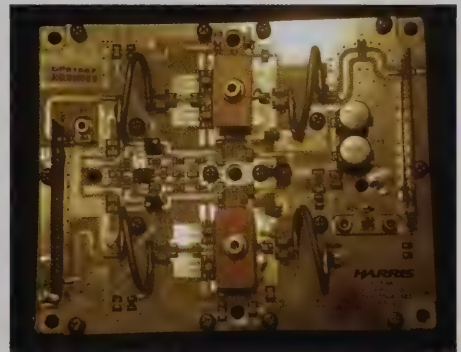
The above information is dated 12 7 11. Further information or questions should be directed to:

Central Illinois/St. Louis Area ATV Club
Scott Millick K9SM
222 N. Jackson St.
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217 324 2412
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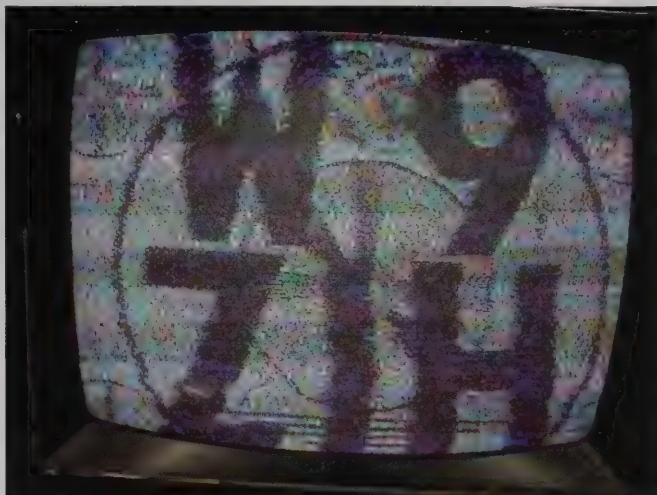
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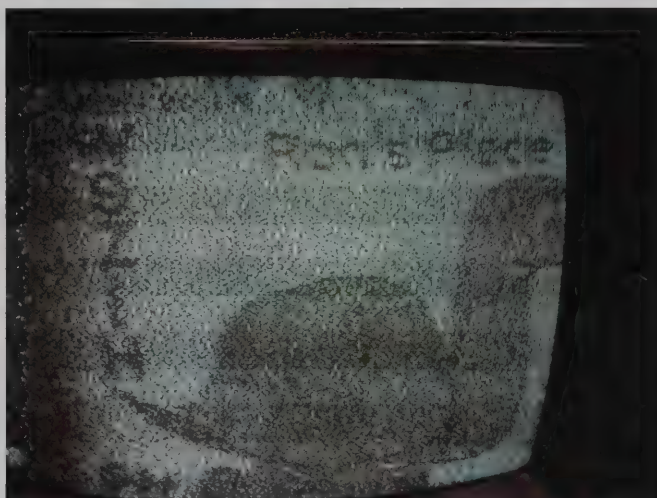
ATV DX FROM W8URI

Bill sends us this information about his recent DXing with ATV. Now, let's see some of the same from the rest of you. How about it?

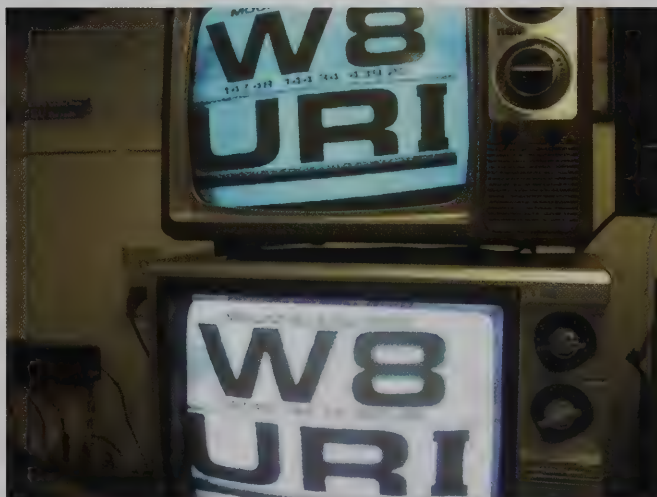
Here is a picture of W9ZIH as received at my location at about 9 P.M. on 02/06/2012. I gave him a P3. I received a similar report from him. Ron is located in Malta, Illinois near Chicago. DX: 331 miles



Same day contact with Ron, W9ZIH. As you can see, the band was fading but a good picture none the less. The picture was taken with my cell phone on the TV screen and sent to my Email. It was then forwarded to you. DX: 331 miles



Here is one from Oct 2011. The pix are from Farrell, W8ZCF in Cincinnati as he received me at his house at our morning get together on 3930 around 7:45 - 8:30 ish. DX: 133 miles



...W8URI

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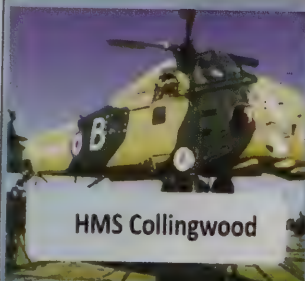
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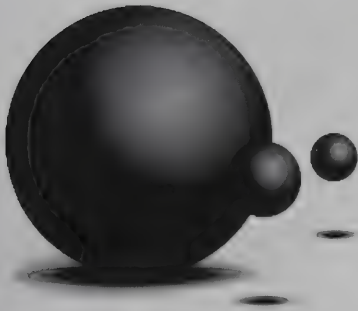
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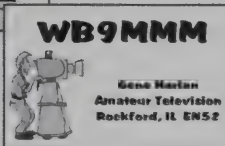
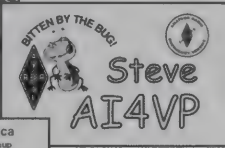
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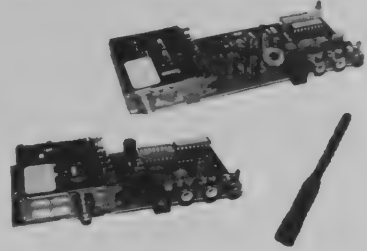
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ATN-CA Summer BBQ Social

- Mike Collis WA6SVT

The August 20, 2011 Summer BBQ social was held at the QTH of Mike WA6SVT and Laura KJ6GFI just completed new home in the San Bernardino Mountains. The QTH is on top of 5300 ft Jobs Peak. Mike goes green with his towers, yes there are three tree towers all complete with Rohn 25 tower sections towering above the top of the 110 ft trees. We had our largest turn out in our history with over 50 in attendance. Many thanks to Tom Board WB6HYH for supplying his BBQ and as our chief BBQ pit master. We even brought out a few inactive members and Doug W7FDF one of our ATN-AZ members all the way from Vail south of Tucson, over a nine hour drive away, either he is dedicated member or heard we have one of the best BBQs in the west, perhaps a little of both. We had chicken breasts, ribs and Angus burgers, members and guests brought some of the best side dishes too.

We had a table overflowing with both great condition equipment and some average stuff to give away; members were asked to make a small donation to the club. We had video monitor scope, VSB modulators, analog and digital sat receivers for use with FM and DATV reception, power supplies, 2.4 GHz amplifiers filters and all sorts of other smaller goodies, one third of my horde of electronics stash. This was a great reason for me to spend days prior to the meeting sorting through my junk box (the garage and the old cabin I used to live in) to shrink it down to a manageable level.

Later after the meeting was over Mike gave a tour of the new home with built in movie theater 10.5 foot wide screen acoustical transparent with left, center,



Looking over all the great stuff.

Photo by Ernie Williams WB6BAP



Over 50 ATN members and guests attended.

Photo by Ernie Williams WB6BAP

and right full size speakers behind the screen and super large dual 18" subwoofer stage, you can fit three persons inside the subwoofer chamber.

Member's kids loved watching a movie while we had

our meeting.

After the tour a few members stayed and we had a tune up session and were able to help fix two down converters, a 2.4 GHz ATV transmitter and install a 1.2 GHz model in a multiband Kenwood and also add the ATV modification too. Feedback of the event has been good and many said this was our best event so far.



Brett Williams WA6SXU checks out the equipment giveaway table.

Photo by Ernie Williams WB6BAP

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bob-4h

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Digital TV DX Record for Colorado

- Jim Andrews KH6HTV

kh6htv@arrl.net



High Definition, 1080i,QAM-64, Digital TV transmission from Jim, KH6HTV as received by Roger, K0IHx (photo courtesy of K0IHx)

A new Colorado record for long distance transmission of amateur Digital Television (DTV) was set on November 21, 2011. The distance was 75 miles from Cheyenne, Wyoming to Boulder, Colorado. A live, high-definition, (1080i, 16:9) DTV picture was transmitted on 70 cm by Jim Andrews, KH6HTV from a ridge line on I-25 just south of Cheyenne to Bill McCaa, K0RZ, on Davidson Mesa, south-east of Boulder. NTSC, analog, 70cm TV pictures were also successfully transmitted over this same path. There were also three other Boulder hams that participated in the TV dxpedition attempting to receive both the analog and digital TV signals at their home QTHs. They were Roger Salaman, K0IHx, Don Nelson, N0YE, and Jack Quinn, K0HEH.

Jim was transmitting a 5 Watt DTV signal on channel

58.1 (429 MHz) with a KH6HTV-VIDEO, model 70-8, analog/digital TV transmitter. The antenna was a vertically polarized, KLM, 6 element yagi with 11 dBi gain at 10 ft elevation. The modulation used was QAM-64, which is the same modulation used on the USA cable TV (CATV) systems. QAM-64 can be received directly on home analog/digital TV receivers without requiring any converter box. Tests were also run using conventional NTSC (480i, 4:3), VUSB-TV. For VUSB-TV, the model 70-8 output power was 25 Watts PEP on channel 57 (421.25 MHz). For details on the TV transmitter see www.kh6htv.com

The secret to the success of this 75 mile DTV DX contact was Bill's really big antenna. Bill used an array of eight, 22 element yaggis with a 0.3dB noise



Bill, K0RZ's 70 cm phased array of eight, 22 element yaggi antennas. Gain = 27 dBi (photo courtesy of K0RZ)

figure pre-amp mounted at the antenna. The antenna gain was 27 dBi. To emulate a more conventional ham TV station, Bill also used a KLM, 6 element yagi (11 dBi gain) with a 0.5dB NF preamp. The DTV receiver was a conventional Insignia 22" LCD-TV. A precision step attenuator was used in front of the 0.5dB NF preamp/TV receiver to determine the received signal margin above QAM-64 digital threshold (-85dBm).

The 75 mile path from Cheyenne to Boulder was a perfect line of sight rf path with no intermediate obstructions. KH6HTV's transmit location was at 41° 02' 53" N x 104° 53' 26" W at an elevation of 6,265'. K0RZ's receive location was at his qth at 39° 59' 0" N x 105° 10' 6" W at an elevation of 5,620'. The low point on the rf path was at the Cache la Poudre river at an elevation of 4,900'. K0RZ had a

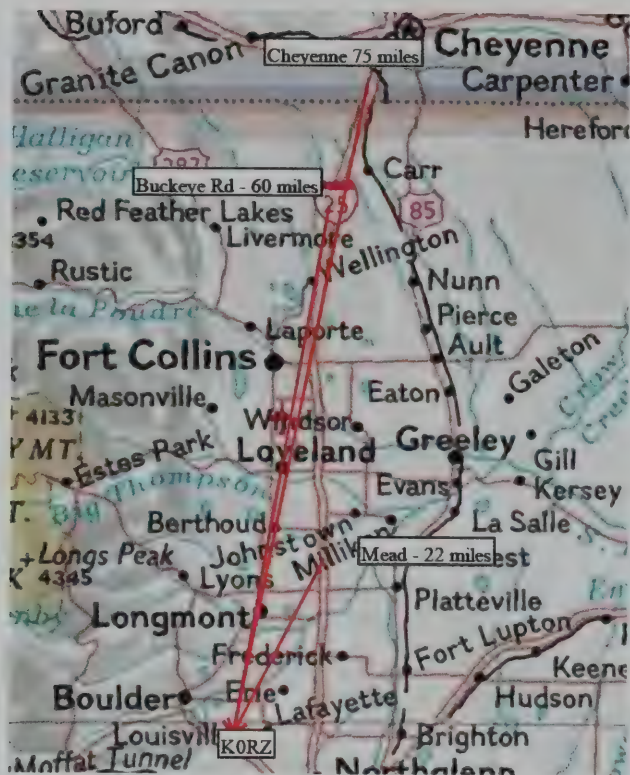
lot of prior experience using this particular path for successful 10 GHz SSB contests.

For the Cheyenne to Boulder DTV test, Bill needed to use his big antenna array to receive the 5 Watt DTV signal. The receive margin was 7 dB. No DTV signal was received on the 6 element yagi. For the 25 Watt analog TV signal, Bill reported a P2 picture on the 6 element yagi and a P5 picture with the big antenna. Roger, K0IHX, was using an 11 element, 14 dBi, M-Squared yagi antenna, at 27' and no preamp. He was unable to receive the DTV signal, but he reported receiving a P3 picture on the analog TV signal.

On the way out from Boulder, Jim first stopped at two other good sites that Bill had previously used for 10 GHz contests. The first was at the Mead, CO

Cont. on Page 28



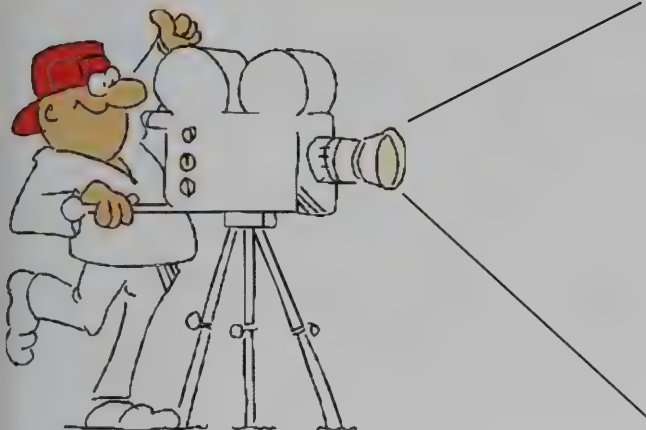


Map showing the RF paths for the 70cm Digital TV DXpedition
KH6HTV to K0RZ

AT&T cell site on I-25, which was a distance of 22 miles from Boulder. All participants were able to receive the analog TV transmission. Bill and Roger reported P5 pictures. Jack, reported P1. When the analog TV transmitter was switched over to Ch. 60 (439.25MHz) it was also able to bring up the BCARES, Boulder TV repeater, W0BCR. The signal strength was at a P5 level, but there was severe ghosting due to multi-path reflections from the Flatiron mountains immediately behind the repeater. For the channel 58.1 DTV transmission, both Roger and Bill received perfect digital, hi-def. pictures. For Bill the receive margin was 13 dB with the 6 element yagi and 32 dB with the big antenna array.

The second, intermediate site was at the Buckeye road exit on I-25 near the Wyoming border. The distance from Buckeye to Boulder was 60 miles. From this location, we were unable to key up the W0BCR TV repeater. For the analog TV transmission, Roger

reported a P3/P4 picture. Bill reported a P3 picture with the 6 element yagi and a P5 picture with the big antenna array. For the digital TV transmission, Roger was unable to receive a picture. Bill reported no picture with the 6 element yagi but a P5 digital picture on the big antenna array with an 18 dB margin.



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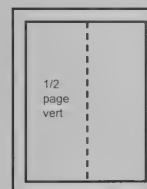
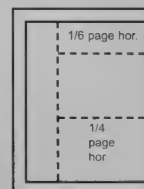
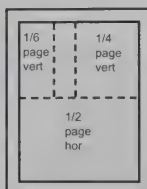
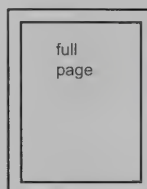
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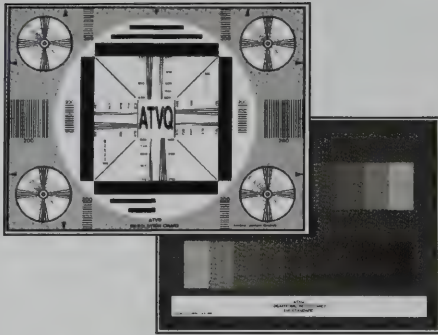


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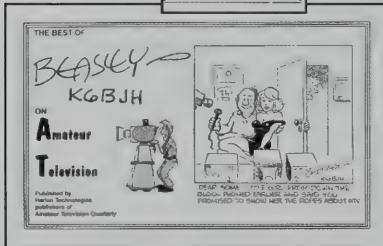
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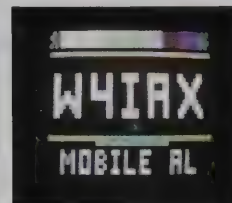
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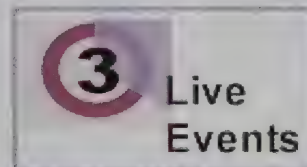
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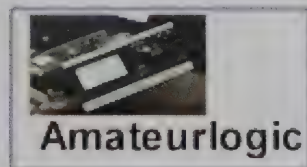
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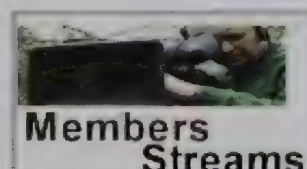
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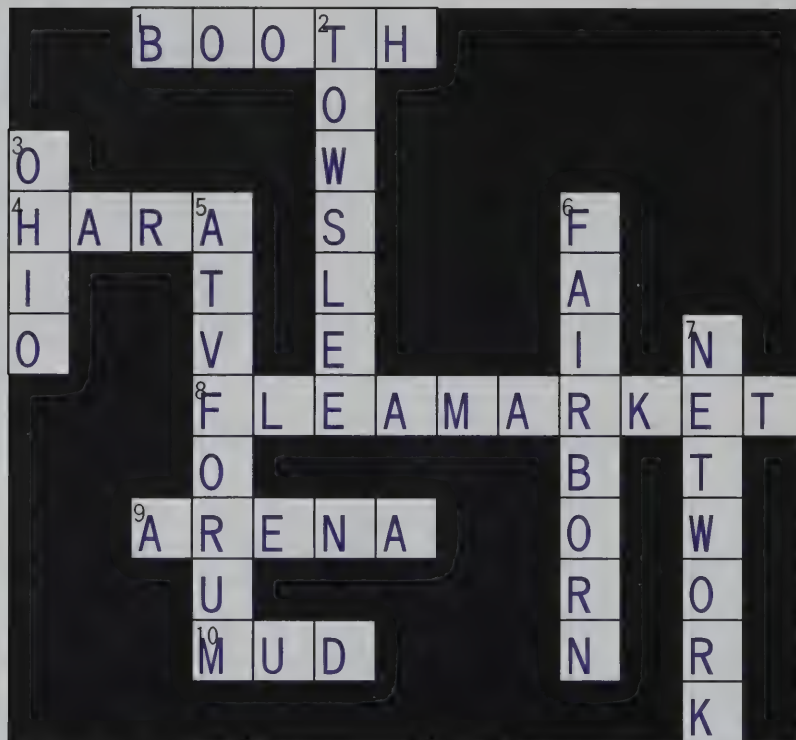
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- | Across | | Down | |
|--------|---|------|---|
| 1 | Inside vendors sit in this | 2 | Last name of the ATV Forum moderator |
| 4 | Name of the Hamvention building | 3 | The O in ATCO |
| 8 | Lots and lots of old stuff for sale | 5 | Where you go to see talks about ATV |
| 9 | Where all the big prizes are handed out | 6 | City where the Friday Night ATV dinner is held
<hint: see p. 24> |
| 10 | What the parking lots are made out of after the usual rains | 7 | The N in ATN |

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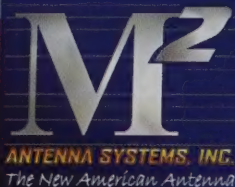
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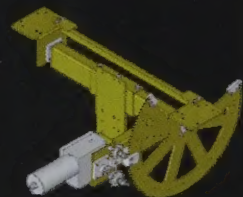
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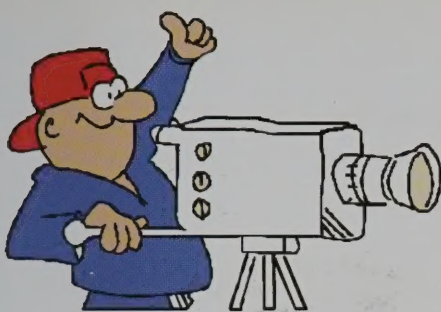
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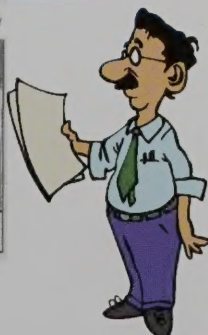
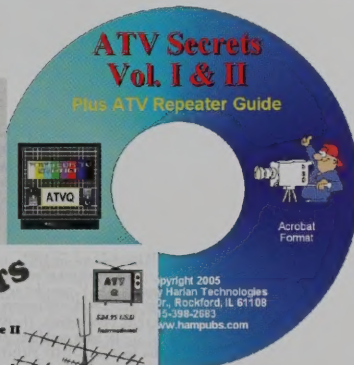
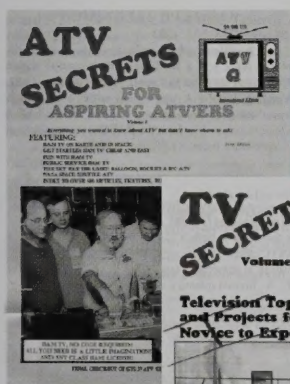
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